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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/397,040	09/16/1999	RICHARD L. WEISFIELD	7447.0028	8270

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
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WASHINGTON, DC 20005

EXAMINER

ROSENDALE, MATTHEW L

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 08/29/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/397,040

Applicant(s)

WEISFIELD, RICHARD L.

Examiner

Matthew L. Rosendale

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 9-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's election with traverse of claims 1 - 8 in Paper No. 4 is acknowledged. The traversal is on the ground(s) that searching all claimed inventions would not place a serious burden on the examiner because each invention is classified in the same class. This is not found persuasive because invention I can be used to record an image of an object scene, which is a materially different process than testing the sensor array during the fabrication process therefore requiring a completely separate search of the prior art.

Additionally the applicant has elected species I of the invention with traverse. The traversal is on the grounds that the search would not place serious burden on the examiner due to the small number of species contained within the claims of the application. This is also found not to be persuasive because species I is directed to a clamping circuit comprising a clamp diode where species II is directed to a clamping circuit comprising a clamping transistor.

Each invention has utility in an electronic camera, but also, each invention would require a separate and distinct search due to the distinct structure found in each separate invention.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the clamping circuit according to claim 8 having a photodiode having an anode, a cathode, and a storage node, wherein the anode is connected to the other source or drain of the TFT and the cathode is connected to the bias line

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and a clamp diode having an anode and cathode, wherein the clamp diode anode is connected to the clamp line and the clamp diode cathode is connected to the storage node of the photodiode must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of the Applicant's Conceded Prior Art ACPA.

Referring to claim 1, Nakamura discloses an image array in figure 2A having a plurality of pixels disposed in a line sensor, which also has been alternatively disclosed by Nakamura as an area sensor comprising rows and columns of pixel sensors. Each pixel in the image sensor of Nakamura includes a phototransistor S_n , a thin film transistor (TFT) Q_n , and a clamping diode D_n . The image array further comprises a plurality of data lines ϕ_{h_n} , plurality of gate lines 103, and plurality of bias lines carrying a bias voltage V_{cc} . The plurality of clamp lines L_{rh} interconnecting the clamping diodes D_n in individual rows of the array. The clamp line L_{rh} carries a clamp voltage V_e (Col. 4, Line 38 – Col. 5, Line 40).

Nakamura does not disclose a photodiode as the light receiving means of the pixel sensor. However, it is disclosed in figure 1 of the current application, that conventional pixel sensors are well known to comprise a photodiode as a light receiving means.

Therefore it would have been obvious to use the photodiode of the applicants conceded prior art as the light receiving means of the image sensor of Nakamura to electronically capture an object image.

2. Referring to claim 2, the clamp diode D_1 of Nakamura is connected to the clamp line L_{rh} and the clamp diode cathode is connected to the emitter of the phototransistor S_1 (Col. 4, Lines 38 – 68).

Nakamura does not disclose a photodiode as the light receiving means of the pixel sensor. However, it is disclosed in figure 1 of the current application, that conventional pixel sensors are well known to comprise a photodiode as a light receiving means.

Therefore it would have been obvious to use the photodiode of the applicants conceded prior art as the light receiving means of the image sensor of Nakamura to electronically capture an object image.

3. Referring to claim 3, the clamping voltage V_e keeps the photo element of Nakamura under reverse bias until being exceeded by the voltage of the clamping diode due to excessive charges in the photo element (Col. 5, Lines 21 – 40).

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3. Referring to claim 4, Nakamura discloses a clamping voltage V_e being a constant voltage. Nakamura does not disclose a specific value of the constant clamping voltage.

Therefore it would have been obvious to one of ordinary skill in the art to set the clamping voltage V_e between -4 and -5 volts as long as the clamping voltage is less than the bias voltage V_{cc} as disclosed by Nakamura (Col. 4, Line 38 – Col. 5, Line 40).

3. Referring to claim 5, when the photo element of Nakamura becomes overexposed the clamping diode D_n has a forward bias and drains off excessive charges from the photo element (Col. 5, Lines 21 – 40).

4. Referring to claim 6, Nakamura does not specifically disclose a forward bias voltage only that it is $1.4V$ higher than the clamp voltage (Col. 5, Lines 21 – 40). Therefore it would have been obvious to one of ordinary skill in the art to apply any voltage including $0.1V$ as the reverse bias voltage in order to correctly operate each individual pixel.

7. Referring to claim 7, Nakamura discloses a bias voltage V_{cc} being a constant voltage. Nakamura does not disclose a specific value of the constant bias voltage. Therefore it would have been obvious to one of ordinary skill in the art to set the bias voltage V_{cc} between -8 and -10 volts (Col. 4, Line 38 – Col. 5, Line 40).

8. Referring to claim 8, Nakamura discloses a clamping circuit in an image sensor comprising a gate line 103, data line $\phi 1$, bias line carrying a bias voltage V_{cc} , a clamp line L_{rh}

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carrying a clamp voltage V_e , a TFT Q1 having a source, drain, and gate, wherein the source of the TFT is connected to the data line $\phi h1$ and the gate is connected to the gate line 103. A phototransistor S_1 is disclosed wherein the base of the transistor S_1 is connected to the source of the TFT and the base of the transistor S_1 is connected to the bias line. A clamping diode D_1 having an anode and cathode is also disclosed wherein the clamp diode D_1 is connected to the clamp line L_{rh} and the clamp diode cathode is connected to the emitter of the photo transistor S_1 (Col. 4, Line 38 – Col. 5, Line 40).

Nakamura does not disclose a photodiode as the light receiving means of the pixel sensor. However, it is disclosed in figure 1 of the current application, that conventional pixel sensors are well known to comprise a photodiode as a light receiving means.

Therefore it would have been obvious to use the photodiode of the applicants conceded prior art as the light receiving means of the image sensor of Nakamura to electronically capture an object image.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew L Rosendale whose telephone number is (703) 305-4909. The examiner can normally be reached on Monday - Friday 8: 00am-4: 00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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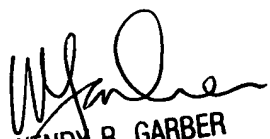
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer service whose telephone number is (703) 306-0377.

MLR

August 14, 2003


WENDY R. GARBER
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